M M Abid Naziri

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About Me

PhD Researcher specializing in **Software Testing** for learning-enabled systems. I develop automated testing techniques for Deep Learning Libraries (**PyTorch**, **TensorFlow**) and **Autonomous Driving Systems** in a simulation environment (**CARLA**). I have reported **94** bugs (**74** confirmed) to **PyTorch** and **TensorFlow** to date [list].

Education

NC State University, PhD in Computer Science (4th year)   May 2027 (Expected)
Advisor: Dr. Marcelo d'Amorim
Award: Graduate Merit Award - Summer 2025

Research Projects & Publications

Testing Deep Learning Libraries via Neurosymbolic Constraint Learning   ICSE 2026 (Accepted)

M M Abid Naziri, Shinhae Kim, Feiran Qin, Saikat Dutta, Marcelo d'Amorim

- Designed and implemented **Centaur**, a neurosymbolic constraint learning tool for DL APIs to generate valid test inputs.
- Uncovered **23** new bugs in Tensorflow and PyTorch (**11** confirmed).

Venue: IEEE/ACM International Conference on Software Engineering (ICSE 2026)

Misbehavior Forecasting for Focused Autonomous Driving Systems Testing   ICSE 2026 (Accepted)

M M Abid Naziri, Stefano Carlo Lambertenghi, Andrea Stocco, Marcelo d'Amorim

- Developed **Foresee**, a tool to enhance simulation-based testing of self-driving software by identifying and analyzing near-miss scenarios, improving failure detection efficiency and effectiveness.
- **Foresee** exposes **128%** more failures than state-of-the-art failure predictors.
- **Foresee** also enhances the capability of an existing technique DriveFuzz by upto **94%**.

Venue: IEEE/ACM International Conference on Software Engineering (ICSE 2026)

BugsInDLLs: A Database of Reproducible Bugs in Deep Learning Libraries to Enable Systematic Evaluation of Testing Techniques   ISSTA 2025

M M Abid Naziri, Aman Kumar Singh, Benjamin Wu, Feiran (Alex) Qin, Saikat Dutta, Marcelo d'Amorim

- Developed an open-source dataset **BugsInDLLs** with **112** reproducible bugs across three popular DL libraries: JAX, Tensorflow, and PyTorch.
- Added support for benchmarking other fuzzing tools with an included integration of FreeFuzz.

Venue: The ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2025: Tool Demonstration Track)
[pdf]

Evaluating the Effectiveness of Coverage-Guided Fuzzing for Testing Deep Learning Library APIs   Submitted

Feiran Qin, *M M Abid Naziri*, Hengyu Ai, Saikat Dutta, Marcelo d'Amorim

- Conducted a study to assess the effectiveness of coverage guided fuzzing to test Deep Learning Library APIs.
- Reported **42** new bugs in Tensorflow and PyTorch (**8** Fixed).

[preprint]

Evaluating the Effectiveness of Machine Learning to Improve Deep Learning Library Testing   Submitted

Facundo Molina, *M M Abid Naziri*, Feiran (Alex) Qin, Alessandra Gorla, Marcelo d'Amorim

- Applied ML classifiers to infer the validity of an input before executing to increase efficiency of DL Library fuzzing tools.
- The classifiers achieved an accuracy of **91%** in predicting input validity.
- They also improved an existing fuzzing tool called ACETest by increasing its validity ratio from **29%** to **61%**.

Experience

Senior Software Engineer, Enosis Solutions – Dhaka, Bangladesh   Mar 2019 – Jul 2022
- Developed scalable web applications using Vue JS, TypeScript, and ASP.NET Core, including a project management tool deployed to **270** employees and a Welder Management system
- Developed desktop applications DesignCalcs and ProWrite for pressure vessel design, adding features, fixing bugs, and creating unit/regression tests
- Managed CI/CD pipelines, configured testing servers, and ensured smooth system operations
- Operated in an **Agile** development process in a development team of **7** people
- Mentored new recruits, conducted code/design reviews
- Collaborated with clients and team members via **JIRA**

Technologies

Languages: Python, R, C#, Delphi, Java, C/C++, JavaScript, TypeScript, Bash

Technologies: PyTorch, TensorFlow, CARLA Simulator, Docker, Github Actions, ASP.NET Core, React JS, Vue JS, TestComplete, DUnit